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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,954

08/04/2005

Jean-Luc Pamart

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EXAMINER

LAMB, CODY W

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4177

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,954	Applicant(s) PAMART ET AL.	
	Examiner Cody W. Lamb	Art Unit 4177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/04/2005 and 05/31/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: the amended paragraph 47 has a line which reads (...**EDGA** (Erbium Doped Fiber Amplifier)...". The acronym "EDGA" should be changed to "EDFA".

Appropriate correction is required.

Claim Objections

3. Claim 33 is objected to because of the following informalities: the claim reads "...element of the **multiplex** is...". The word "multiplex" should be changed to "multiplexer". Appropriate correction is required.
4. Claim 39 is objected to because of the following informalities: the claim reads "...receives **a multiplex of optical carriers**...". The phrase "a multiplex of optical carriers" should be changed to "multiplexed optical carriers". Appropriate action is required.
5. Claim 44 is objected to because of the following informalities: the claim reads "...wherein the optical **gage** comprises...". The word "gage" should be replaced with "gate". Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 24-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Luciano Bosotti (US Patent No. 4,267,590), referred herein as Bosotti.

Regarding claim 24, Bosotti teaches a process wherein data is transmitted on an optical fiber comprising multiplexing in wavelength signals coming from a plurality of monochrome transmitters each with its own wavelength (column 3, lines 20-23 teach transmitters transmitting a plurality of monochrome wavelengths λ_n and column 1, lines 8-10 teach a fiber as the data carrier medium) and modulating information to be transmitted by a carrier realized per channel (column 2, lines 3-9 teach modulating the data streams of the channels) where the timing (clocking) of each transmitter is controlled by a common clock (column 3, lines 24-27 teach a common clock).

Regarding claim 25, Bosotti teaches the limitations of claim 24. Bosotti also teaches formatting the data that is common and simultaneous for all carriers (column 2, lines 10-36 teach aligning the phases at their peaks and troughs, a type of formatting, based on the common clock frequency between all carriers simultaneously).

Regarding claim 26, Bosotti teaches the limitations of claim 25. Bosotti also teaches the formatting as optimizing the optical parameters of the signal as a function of the characteristics of propagation of an associated transport means (column 2, lines 10-22 teach optimizing (by minimizing) the signal degradation by formatting the data).

Regarding claim 27, Bosotti teaches the limitations of claim 25. Bosotti also teaches a formatting process comprising optimizing optical parameters of the signal as

a function of the characteristics of propagation of an associated transport means (column 2, lines 10-22 teach optimizing (by minimizing) the signal degradation by formatting the data where the signal degradation is due to crosstalk, which is an associated transport means).

Regarding claim 28, Bosotti teaches the limitations of claim 25. Bosotti also teaches the process of formatting by an operation of stabilizing temporal parameters of the data (column 2, lines 23-36 teach aligning the signal periods which are a temporal parameter of the data signal)

Regarding claim 29, Bosotti teaches the limitations of claim 24. Bosotti also teaches the process of synchronizing the streams emitted by the transmitters (column 2, lines 23-31 teach synchronizing outputs of the transmitters).

Regarding claim 30, Bosotti teaches the limitations of claim 24. Bosotti also teaches the process of formatting the signals by aligning the phases of the signals generated by the transmitters (column 2, lines 10-17 teach aligning the phases).

Regarding claim 31, Bosotti teaches the limitations of claim 30. Bosotti also teaches the process of aligning the phases subject to ambient parameters to compensate for temporal signal variations (column 4, lines 23-30 teach a monitoring circuit to compensate for natural (ambient) variation in the transmission characteristics and drifts of data sources).

Regarding claim 32, Bosotti teaches the limitations of claim 30. Bosotti also teaches the aligning being subject to ambient parameters to compensate for differences and variations between optical paths (column 1, lines 13-33 teach the alignment of the

signals along the optical paths as being subject to crosstalk, a process caused by ambient noise coupling between channels on the paths, depending on the phases of the signals).

8. Claims 38 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Yuuki Yoshifuji et al. (US Patent No. 6,771,907), referred herein as Yoshifuji.

Regarding claim 38, Yoshifuji teaches a plurality of monochrome transmitters each with its own transmission wavelength (column 1, lines 26-31 teach multiple transmitters with different but intrinsic wavelengths), each transmitter having a slave clock (column 1, lines 61-64 teach slave stations with clocks), a multiplexer (column 1, lines 27-31 teach the multiplexer) and a master clock controlling the slave clocks (column 1, lines 61-64 teach a master clock controlling the clocks of the slave stations).

Regarding claim 39, Yoshifuji teaches the limitations of claim 38. Yoshifuji further teaches an optical gate that receives a multiplex of optical carriers and a cutting signal produced by the master clock (column 1, lines 61-64 teach slave stations which receive signals from the master clock and the multiplexed optical carriers, thus acting as a gate).

9. Claim 46 is rejected under 35 U.S.C. 102(b) as being anticipated by Franco Mussino et al. (US Patent No. 5,812,297), referred herein as Mussino.

Regarding claim 46, Mussino teaches a counter-reaction circuit for an apparatus that transmits data on an optical fiber and which generates a frequency marker (column

2, lines 59-67 teach applying a sinusoidal pilot tone signal, or frequency marker) for injecting a disturbing spectral signal of a transmitter comprising a detector (column 2, line 63 teaches the detector) for an output signal of a gate that acts on an automatic controller of a transmitter phase that obtains a selected spectral transformation of each marker (column 5, lines 16-21 teach a linearizer circuit which receives a spectral signal as an input and automatically performs operations according to predetermined values to operate on the phase)

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosotti in view of Mussino.

Regarding claim 33, Bosotti teaches the limitations of claim 24. However, Bosotti does not teach applying a frequency marker to the phase prior to entering the multiplexer. Mussino teaches applying a frequency marker to a phase before transmitting (column 8, lines 13-17 teach phase modulating a pilot tone, which is equivalent to a frequency marker applied on the phase, and figure 1, items 6 and 7

teach the modulation as being applied before the signal enters any network or multiplexer). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Bosotti with the teaching of Mussino for encoding information about bias voltage, or possibly another physical system value, onto a pilot tone in an optical signal (column 2, lines 59-67 teach this advantage).

Regarding claim 34, Bosotti teaches the limitations of claim 24. However, Bosotti does not teach applying a frequency marker to the amplitude prior to entering the multiplexer. Mussino teaches applying a frequency marker to an optical signal's amplitude before multiplexing (column 8, lines 13-17 teach amplitude modulating a pilot tone, which is equivalent to a frequency marker applied on the phase, and figure 1, items 6 and 7 teach the modulation as being applied before the signal enters any network or multiplexer). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Bosotti with the teaching of Mussino for encoding information about bias voltage on a pilot tone in an optical signal (column 2, lines 59-67 teach this advantage).

Regarding claim 35, Bosotti and Mussino teach the limitations of claim 34. Mussino further teaches a process where the marker comprises a signal with a predetermined spectrum (column 2, lines 60-61 teach the pilot tone having a predetermined frequency, or spectrum). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include Mussino's teaching of a predetermined frequency spectrum for detecting a

feedback for altering the control of the output modulation signal (column 4, lines 34-39 teach this advantage).

Regarding claim 36, Bosotti and Mussino teach the limitations of claim 34. Mussino further teaches a process where the marker comprises a signal with a spectrum whose characteristics are a function of the disturbances undergone by the signal on a corresponding path (column 3, lines 20-25 teach looking for the presence of disturbances based on the pilot signals). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include Mussino's teaching of looking for disturbances for restricting distortions of signals in optical lines (column 3, lines 13-19 teach this advantage).

Regarding claim 37, Bosotti and Mussino teach the limitations of claim 34. Mussino further teaches the process where characteristics of the marker are determined to disturb a marked signal in such a manner that marking is evanescent during passage through the gate (column 8, lines 27-36 teach attenuating the pilot tone by adding it with a phase shifted version of itself as it propagates through the gate). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include the evanescent, or attenuating, teachings of Mussino for modifying the spectrum of the signal entering the amplifier only at the exact frequency of the pilot tone (column 8, lines 37-39 teach this advantage).

12. Claims 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshifuji in view of Mussino.

Regarding claim 40, Yoshifuji teaches the limitations of claim 38. However, Yoshifuji does not teach a frequency marking circuit for each element of the multiplexer. Mussino teaches a frequency marking circuit for a transmitter (column 8, lines 48-53 teach a quartz oscillator element for generating pilot tones for imposing a lower-frequency modulation on a signal prior to entering a network or multiplexer, wherein the oscillator is inherently part of a circuit requiring an active power source). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Yoshifuji with the teaching of Mussino for encoding information about bias voltage, or possibly another physical system value, onto a pilot tone in an optical signal (column 2, lines 59-67 teach this advantage).

Regarding claim 41, Yoshifuji and Mussino teach the limitations of claim 40. Mussino further teaches the frequency marking circuit applying the marking signal onto a transmitter (column 8, lines 55-57 teach the marking signal being applied to the modulator of a transmitter). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include Mussino's teaching for encoding information about bias voltage, or possibly another physical system value, onto a pilot tone in an optical signal (column 2, lines 59-67 teach this advantage). Yoshifuji and Mussino do not teach a plurality of frequency marking circuits and transmitters. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use multiple circuits for the multiple transmitters of Yoshifuji's embodiment (figure 1, items 11) since it has been held that mere

duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claim 42, Yoshifuji and Mussino teach the limitations of claim 40. Yoshifuji further teaches a synchronizer for each path (column 1, lines 66-67 and column 2, lines 1-8 teach the synchronizing master clock and its path to the slave stations and clocks). However, Yoshifuji does not teach a frequency marking for the synchronizer. Mussino teaches applying a frequency marker to a phase before transmitting (column 8, lines 13-17 teach a frequency marking via phase of a pilot tone, which is equivalent to a frequency marker applied on the phase, and figure 1, items 6 and 7 teach the modulation as being applied before the signal enters any network or multiplexer). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Bosotti with the teaching of Mussino for encoding information about bias voltage, or possibly another physical system value, onto a pilot tone in an optical signal (column 2, lines 59-67 teach this advantage).

Regarding claim 43, Yoshifuji teaches the limitations of claim 39. However, Yoshifuji does not teach an optical gate comprising a detector for each marker to control the characteristic of the formatting and adjustment of the phase of a corresponding path. Mussino teaches a gate comprising a detector for a marker to control the characteristic of the formatting and adjustment of the phase of a path (column 6, lines 36-42 teach a detector and column 8, lines 13-17 teach phase modulating a pilot tone, which is equivalent to a frequency marker applied on the phase, and figure 1, items 6

and 7 teach the modulation as being applied before the signal enters any network or multiplexer). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Bosotti with the teaching of Mussino for encoding information about bias voltage, or possibly another physical system value, onto a pilot tone in an optical signal (column 2, lines 59-67 teach this advantage).

Regarding claim 44, Yoshifuji teaches the limitations of claim 39. However, Yoshifuji does not teach a spectral analyzer for the marker to adjust the phase of each path. Mussino teaches a spectral analyzer for the marker to adjust the phase of each path (column 4, lines 5-8 teach a linearizer circuit that adjusts the frequency-dependent input into a pre-determined output, inherently performing a spectral analysis and system response to the signal, and column 5, lines 16-21 teach the linearizer circuit adjusting the phase of the frequency-marking pilot signal). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Yoshifuji with the teaching of Mussino for predistorting signals to reduce distortions in transmission (column 2, lines 37-45 teach this advantage).

13. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshifuji in view of Motoo Takeuchi (US Patent No. 6,512,616), referred herein as Takeuchi.

Regarding claim 45, Yoshifuji teaches the limitations of claim 38. Yoshifuji also teaches a demultiplexer (Figure 1, item 15 teaches the demultiplexer). However, Yoshifuji does not teach an optical converter and a clock connected to at least one of

the converters. Takeuchi teaches an optical converter and a clock connected to the converter (column 7, lines 23-30 teach the conversion of a clock signal to an optical transmission). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Yoshifuji with the teaching of Takeuchi for performing packet switching in an optical network wherein the retiming of packet data in the output section is facilitated and an increase in the scale of the circuitry is suppressed (column 4, lines 31-37 teach this advantage).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Regis Lauret (US Patent No. 6,714,548), which teaches a transmission system and method similar to the applicant's disclosure and appears to be worth having on record for future reference.

15. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents,
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cody W. Lamb whose telephone number is 571-270-1797. The examiner can normally be reached on Monday - Friday 8 a.m. - 5 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on 571-272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cody W. Lamb
Examiner, Art Unit 4177
20 November 2007

/Benny Q Tieu/
Supervisory Patent Examiner, Art Unit 4177